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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,922	08/04/2003	Moungi G. Bawendi	14952.0274 C1 D1/MTT 8096	4946
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EXAMINER				
STEELE, AMBER D				
ART UNIT		PAPER NUMBER		
1639				
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02/19/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/632,922

Applicant(s)

BAWENDI ET AL.

Examiner

Amber D. Steele

Art Unit

1639

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 12-13, 26-27, 31-33, and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 12, 13, 26, 27, 31-33 and 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-649)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Status of the Claims

1. Claims 1-39 were originally filed on August 4, 2003.

The amendment to the claims received on April 27, 2006 amended claims 1, 26, and 37.

The amendment to the claims received on October 17, 2006 amended claims 1, 26, and 37 and canceled claims 4-11, 14-25, 28-30, and 34-36.

The amendment to the claims received on December 4, 2007 amended claims 1, 26, and 37.

Claims 1-3, 12-13, 26-27, 31-33, and 37-39 are currently pending and under consideration.

Election/Restrictions

2. Applicants elected polypeptide as the species of compound/member and bead as the species of support in the reply received on October 11, 2005.

Priority

3. The present application claims status as a DIV of 09/397,432 filed September 17, 1999 (now U.S. Patent 6,602,671) which is a CIP of 09/160,458 filed September 24, 1998 (now U.S. Patent 6,617,583) and claims benefit of 60/101,046 filed September 18, 1998.

4. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 121 as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed applications, applications 09/397,432 and 09/160,458 and provisional application 60/101,046 fail to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Please refer to the new matter rejection below regarding the specific alloys and mixtures presented in the claim amendments received on December 4, 2007. Therefore, the presently claimed invention has a priority date of August 4, 2003 (i.e. filing date of the present application).

Invention as Claimed

5. A library of compounds wherein each compound in the library is bound to an individual support, each support having associated therewith more than one population of semiconductor nanocrystals, each population having a distinct characteristic spectral emission, wherein each nanocrystal comprises a Group II-VI semiconductor, a Group III-V semiconductor, a Group IV semiconductor, an alloy of a Group II-VI semiconductor and a Group III-V semiconductor, an alloy of a Group II-VI semiconductor and a Group IV semiconductor, an alloy of a Group III-V semiconductor and a Group IV semiconductor, an alloy of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor, a mixture of a Group II-VI semiconductor

and a Group III-V semiconductor, a mixture of a Group II-VI semiconductor and a Group IV semiconductor, a mixture of a Group III-V semiconductor and a Group IV semiconductor, or a mixture of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor and variations thereof.

Withdrawn Rejection

6. Claims 1-3, 12-13, 26-27, 31-33, and 37-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention regarding the alloys and mixtures is withdrawn in view of the claim amendments received on December 4, 2007.

New Rejection

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-3, 12-13, 26-27, 31-33, and 37-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim amendment received on December 4, 2007 is considered new matter. Applicants did not point to any section of the specification for support of the claim amendments. In addition, the examiner of record did not find support for the claim amendments in the originally filed specification. The claim amendment of “an alloy of a Group

II-VI semiconductor and a Group III-V semiconductor, an alloy of a Group II-VI semiconductor and a Group IV semiconductor, an alloy of a Group III-V semiconductor and a Group IV semiconductor, an alloy of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor, a mixture of a Group II-VI semiconductor and a Group III-V semiconductor, a mixture of a Group II-VI semiconductor and a Group IV semiconductor, a mixture of a Group III-V semiconductor and a Group IV semiconductor, or a mixture of a Group II-VI semiconductor, a Group III-V semiconductor, and a Group IV semiconductor” is considered new matter because while the specification teaches a core consisting of one type of semiconductor with a shell of another type of semiconductor (i.e. support associated with more than one population of semiconductor nanocrystal with distinct spectral emissions), the specification as originally filed does not disclose a core consisting of an alloy or mixture of two types of semiconductors and a shell of an alloy or mixture of two types of semiconductors).

Maintained Rejections

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

10. Claims 1-3, 12-13, 26-27, 31-33, and 37-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Weiss et al. U.S. Patent 5,990,479 filed November 25, 1997.

For present claims 1-3, 26, 31, 32, 37, 38, and 39, Weiss et al. teach pluralities of semiconductor nanocrystals capable of emitting electromagnetic radiation in a narrow wavelength band with linking agents and affinity molecules including antibodies (i.e. compound, member chemical, polypeptide) wherein the semiconductor nanocrystal has a core-shell structure

and is a Group II-VI, Group III-V, or Group IV semiconductor and wherein the semiconductor nanocrystal can be coated with a thin layer of glass (i.e. silicon) with a linking agent and affinity molecule attached (i.e. support; please refer to the entire specification particularly the abstract; Figures 2-3; column 1, lines 15-21; column 2, lines 15-53; column 4, lines 48-67; columns 5-9).

For present claims 12 and 33, Weiss et al. teach a semiconductor nanocrystal coated with a thin layer of glass with a linking agent attached (i.e. glass particle coated with a polymer, a bead, and a pore-glass bead; please refer to the entire specification particularly columns 7-8).

For present claims 13 and 27, Weiss et al. teach affinity molecules that are nucleic acids, antibodies, proteins, polysaccharides, sugars, peptides, drugs, and ligands (please refer to the entire specification particularly column 6, lines 50-67).

Therefore, the presently claimed invention is anticipated by the teachings of Weiss et al.

Arguments and Response

11. Applicants' arguments directed to the rejection under 35 USC 102 (e) as being anticipated by Weiss et al. for claims 1-3, 12-13, 26-27, 31-33, and 37-39 were considered but are not persuasive for the following reasons.

Applicants contend that the Weiss et al. does not teach a support associated with more than one population of semiconductor nanocrystals (i.e. the glass coating described by Weiss et al. is associated with one nanocrystal only). In addition, applicants contend that the glass coating taught by Weiss et al. does not provide a material to which compounds are attached but provides a surface on the nanocrystal that will readily associate with linking agents (i.e. coating is not a support; applicants reference column 7, lines 18-36).

Applicants' arguments are not convincing since the teachings of Weiss et al. anticipate the library of compounds of the instant claims. Weiss et al. teach semiconductor nanocrystals in core/shell configurations wherein a first semiconductor forms the core and a second semiconductor forms a shell (i.e. more than one semiconductor with different spectral emissions; please refer to the entire specification particularly column 6, lines 17-35; column 10, lines 1-9). In addition, Weiss et al. teach glass coated semiconductor nanocrystals with linking agents and affinity molecules attached (i.e. support with compound attached wherein the support encapsulates a core-shell nanocrystal; please refer to Figures 1-3; column 2, lines 18-53; column 4, lines 48-65; column 5, lines 25-40; column 7, lines 5-67; column 8, lines 1-59; column 10, lines 26-29; claims 1, 3-6, 8-9, etc.). It is noted that the presently claimed method does not specify that the molecules must directly bind to the supports without linkers. In addition, it is also noted that applicants include glass particles coated with hydrophobic polymers in the definition of supports (i.e. support with linker; see page 8, lines 1-5 of the response received on December 4, 2007).

12. Claims 1, 3, 12, 13, 26, 27, 32, 33, 37, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Frankel U.S. Patent 6,096,496 filed June 19, 1997.

For present claims 1, 3, 26, 32, 37, and 39, Frankel teaches combinatorial chemistry library synthesis utilizing tagged beads bound to peptides, nucleotides, and small organic molecules wherein the tag can be semiconductor nanocrystals including Group III-V particularly GaAs which emits light (please refer to the entire specification particularly abstract; columns 1, 5, 8, 11, 14-17, 21-22, 32).

For present claims 12 and 33, Frankel teaches beads made of cellulose, glass, pore-glass, resin, silica, and polystyrene (please refer to the entire specification particularly column 11, lines 26-43; column 12, lines 57-67; columns 13-17).

For present claims 13 and 27, Frankel teaches polypeptides (please refer to the entire specification particularly column 1, lines 19-37; column 4, lines 8-20).

Therefore, the presently claimed invention is anticipated by the teachings of Frankel.

Arguments and Response

13. Applicants' arguments directed to the rejection under 35 USC 102 (e) as being anticipated by Frankel for claims 1, 3, 12-13, 26-27, 32-33, 37, and 39 were considered but are not persuasive for the following reasons.

Applicants contend that Frankel does not teach that each bead or support is associated with more than one population of semiconductor nanocrystal wherein each has a distinct characteristic spectral emission.

Applicants' arguments are not convincing since the teachings of Frankel anticipates the library of compounds of the instant claims. Frankel teaches a bead (100) surrounding a substrate (190) with ID tags (120) which may be encapsulated (125) and comprises molecular anchoring sites (130a-c) with oligomeric compounds attached (165a-c) directly associated with the bead (please refer to the entire specification particularly Figures 1A and 1B; column 9, lines 59-64; column 13, lines 7-67). Additionally, Frankel teaches that the bead can be made of cellulose, glass, pore-glass, resin, silica (i.e. Group IV semiconductor), polystyrene, the material of the identification tagging apparatus (i.e. semiconductor; Si, Group IV semiconductor; GaAs; Group III-V semiconductor; please refer to the entire specification particularly column 11, lines 26-43;

column 12, lines 57-67; column 13, lines 1-6). In addition, Frankel teaches multiple ID tags forming a distinct combination code for each bead (i.e. multiple spectral emissions) including various semiconductors (i.e. Si, GaAs, alloys of GaAs, AlInGaP, InGaP, InGaAlP, AlAs, AlGaAs, InSn, Group III-V; please refer to column 5, lines 32-67; column 8, lines 4-32; column 11, lines 44-67; column 12, lines 1-56; column 14, lines 39-44; column 15, lines 1-31; column 16, lines 16-52; column 21, lines 35-67; column 22; column 29, lines 52-67; columns 30-32). Moreover, it is noted that present claims 2, 31, and 38 claim that the first and second semiconductor material are the same or different (i.e. same semiconductor can have distinct characteristic spectral emissions).

Future Communications

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amber D. Steele whose telephone number is 571-272-5538. The examiner can normally be reached on Monday through Friday 9:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1639

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ADS

February 4, 2008

/Jon D. Epperson/

Primary Examiner, AU 1639